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Dusty's in the Lead!

America's favorite new ag plane, Dusty Crophopper, soars into theaters in

Disney PLANES

Aerial Application's New Leading 'Man'

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A behind-the-scenes look at the making of Disney's *Planes*, starring Dusty Crophopper

Four years ago a trio of self-described aviation buffs holed themselves up in a room and began dreaming up ideas for a story about airplanes. They weren't just any aviation enthusiasts, however. The creative team behind *Cars*, the hit film from Pixar Animation Studios and Walt Disney Pictures, had their sights set on creating an aviation-themed spinoff above the world of *Cars*.

SO BAD HE'S GOOD *Say, what's that on Dusty's nose? Contrary to what you may think, it's not a skull and crossbones. The Piston and Cross-Wrenches insignia is actually a badge of honor from his mentor, Skipper Riley, symbolizing the rarified air Dusty has entered. The name derives from the Jolly Wrenches, an esteemed squadron the old Navy Corsair commanded during his military days.*

Courtesy of Disney

Skipper Riley is an old Navy Corsair who reluctantly agrees to train Dusty Crophopper for the qualifier and subsequent race around the world he enters. (The skull and crossbones on the building behind Skipper, which are actually a piston and crossed wrenches, are explained on the previous page.)

Shortly after the creative session got underway, executive producer John Lasseter, director Klay Hall and screenwriter Jeffrey Howard were casting about for the aerial equivalent to Lightning McQueen, the lead in *Cars* and *Cars 2,* to compete in a race around the world. Improbably, they seized upon the idea of a crop duster as the main character for precisely that reason, the improbability of an ag plane competing in a world-class air race. Suddenly, a wave of ideas poured out with the intensity of an aerial water drop.

"Let's make a movie about a crop duster who's going to enter this race around the world!" someone suggested. "There's going to be a lot of fish out of water stuff! What's it going to be like for a little plane like that to fly into big airports? To fly across water and go to places he's never been?" "Wait, wouldn't it be cool if he ends up on an aircraft carrier and meets some fighter planes?!!"

"A lot of the details you see in the movie are things that came out of that first day and that first basic notion," Howard said. "Then the more that we started to research the history of aerial application and talk to different people who do it, and even talk to other pilots who don't do it, we discovered that it actually fit really well for what we wanted to do with the story."

The project has been in development since 2009. Four years later, the aerial application industry has good reason to look forward to Disney's *Planes*, which opens Aug. 9 in theaters across the country. The animated comedy adventure stars Dusty Crophopper, an ag plane voiced by comedian Dane Cook, and a cast of aviation characters, including a crusty biplane named Leadbottom voiced by Cedric the Entertainer.

Planes is the latest brainchild from Lasseter, Disney and Pixar's chief creative officer and the creator of the *Cars* and *Toy Story* movie franchises. The two *Cars* films alone grossed over $1 billion in box office revenue worldwide. Regardless of its eventual box office intake, *Planes* is already shaping up to be a huge bonanza for aerial applicators and the agricultural aviation industry. Exposing a legion of kids and adults to the skill and sheer "wow factor" aerial applicators display is publicity that would be impossible for NAAA to buy.

In the lead-up to the film's release, Disney's publicity machine has made a concerted effort to court aviation associations and air show enthusiasts.

NAAA had been trying to make inroads with Disney since the fall of 2011 once it learned about *Planes*' lead character to ensure that the industry was positively portrayed in the film. Disney contacted NAAA this spring about promoting the film, and in early April, NAAA President Dana Ness and I had the opportunity to watch an early cut of the film at Disney's Burbank, Calif., studio. (Our verdict: Two thumbs up.)

Disney is in the midst of an auspicious rollout for aviation aficionados this summer. A real-life version of Dusty Crophopper is appearing at select air shows across North America, starting with the Bethpage Air Show in Jones Beach, N.Y., in late May and ending with the 2013 EAA AirVenture in Oshkosh, Wis., July 29–Aug. 2. EAA AirVenture attendees also will have an opportunity to see an advance screening of the movie on Aug. 2.

The studio hired Texas-based aerial applicator Rusty Lindeman to play the role of Dusty in the air show performances. Lindeman customized his Air Tractor 301 to match Dusty's paint scheme and features for the role. Air Tractor Inc. had a hand in the makeover, which also included a turbine engine conversion that transformed the piston aircraft into an AT-400A.

"We're really pleased that Disney approached Air Tractor to help with this project," Air Tractor President Jim Hirsch said. "When the Dusty Air Tractor flies past air show spectators, they'll be entertained and learn how aerial spray planes play a big role in helping feed the world—as well as how we do our job in a professional and responsible way to protect our environment."

Meanwhile, an onslaught of *Planes* and Dusty-related merchandise and apparel is set to grace retail store shelves, including Dusty T-shirts, a remote control model of Dusty, the VTech Disney Planes Dusty Laptop (made for children ages 3 and up), a "Disney's Planes" videogame and everything in between. "I can think of no better scenario than a three-year-old running [with Dusty Crophopper] around a living room in New York City. I just think that can do nothing but good for us," said Doug Thiel, owner/operator of Thiel Air Care Inc. in Chowchilla, Calif.

Thiel is no voice actor, but he contributed a vital voice to *Planes,* the sound of the 1,170 horsepower PT6-65 turbine engine that powers his Air Tractor 802. The film's sound recording team drove to his airstrip last summer to capture every possible sound imaginable that a turbine aircraft can make.

Courtesy of Disney

Patterned after a vintage Stearman biplane, Leadbottom is the proprietor of Vitaminamulch, a special blend of vitamins, minerals and mulch that works miracles when sprayed on crops. "In the movie, he is the first naysaying voice to Dusty," Howard says. "We wanted Leadbottom to be comedic and a little bit crusty, but still a likeable guy." Cedric the Entertainer possesses all three of those qualities and fittingly serves as the voice of Leadbottom.

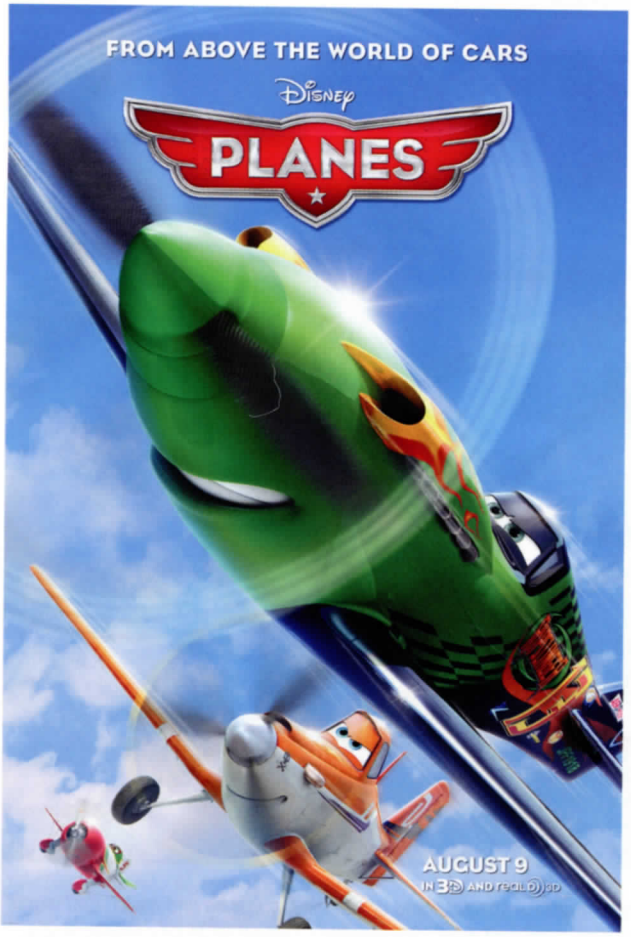
It's all rather remarkable, and the lengths the filmmakers went to stay as true to real life as can be expected for an animated picture about talking airplanes are evident. How did they go about that process and where did it all start? Disney granted *Agricultural Aviation* exclusive access to some of the key participants in the process to find out what it took to bring Dusty Crophopper to life.

The Learning Curve

The gestation period for bringing an animated script from the page to the screen is a long one. The on-screen product may seem like pure fantasy, but the reality is it takes a lot of artistic and technical expertise to get to that point. Although they had attended air shows as fans and Hall came from an aviation family (his father was a Navy test pilot), the filmmakers had had very little exposure to aerial application heading into the project. Disney is nothing if not thorough, though. A stickler for details, Lasseter has always preached to his team that if they're going to depict something on screen, they're going to do it right.

Courtesy of Disney

TOY STORY *The Wing Control Dusty Crophopper Radio Control Plane from Mattel is just one example of the many Planes-inspired toys due in stores from Disney Consumer Products and licensees such as Mattel, Thinkway and LEGO Duplo. Die cast figurines, talking figures, construction sets and more will be available starting in July at mass retailers across the country.*



Courtesy of Disney

The official Planes movie poster.

The filmmakers sought out ag pilots, air racers, aircraft mechanics and manufacturers and turned to YouTube videos, pictures and books to get a better feel for the look and flying styles of ag planes and the other racing aircraft depicted in the film. Aerial applicators' penchant for low-level flying informed a fear of heights for Dusty in the film. They also discovered that ag pilots possessed an excellent skillset for air racing, affirmation that their initial inclination to have the story revolve around a crop duster was the right call. "It's very instinctive stick and rudder flying—very precise, low-level—which is what air racing is about," Howard said.

For simplicity, the term *crop duster* is used throughout the movie even though the production team knows better. "One of the first things we learned was, 'No, no, you don't really call it crop dusting, it's aerial application.' So, there's a line very early on where Leadbottom, the older biplane crop duster, says, 'Are you disrespecting the sweet science of aerial application?' It's something he takes very seriously, so we wanted to make sure we got that official term in," Howard said.

"Authenticity makes it a better movie," the screenwriter added. "Even people who don't quite understand those terms, you can kind of feel when those type of things have been researched rather than just made up."

The Art of Becoming Dusty

Developing the characters is one thing, bringing them to life is another process altogether. As art director for *Planes*, Ryan Carlson has dominion over the visual look of the film. "I spent *a lot* of time during character development researching and studying

the actual planes, photos, videos—anything I could find to help inform the design," said Carlson via email.

He and the character designer also spent a lot of time drawing, first to establish the overall character and shape of the planes. Then they devoted significantly more time to working out the details.

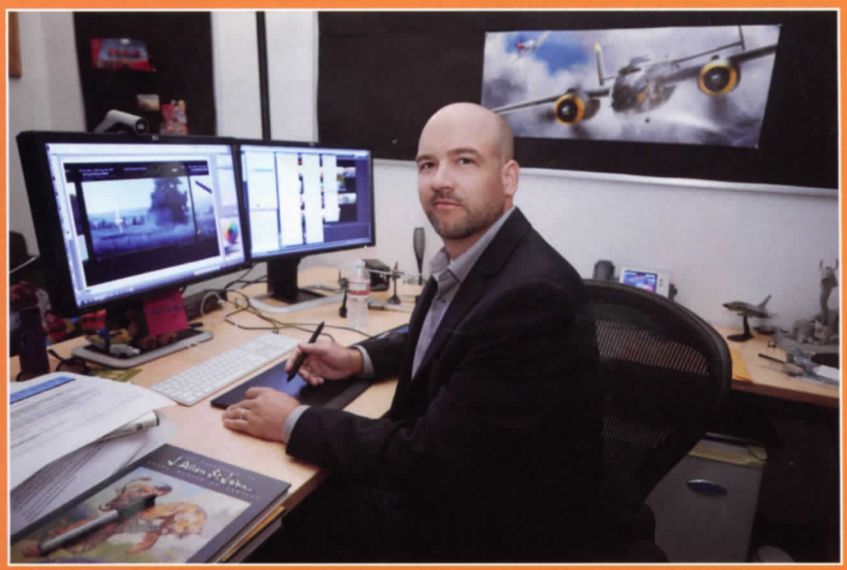
Creating the look of Dusty was an evolutionary process. "We always knew Dusty should be a turbo prop, but there were a lot of iterations getting the proportions and shapes correct so that he looked good both as a character and as an airplane," Carlson said. "One of the first rules we defined was that the characters had to look like they could actually fly. Some of our early designs looked good as a character, but were too cartoony to be believable in the air. It was a bit of a balancing act to get both to work. Dusty also needed to look part hardworking farmhand and part racer. We wanted him to look like he could win.

"The other big rule of our world is 'Truth in Materials.' If something is made of metal, it remains rigid. If it is a rubber tire, it will have some squash and bounce, just as it would in real life. We spent a lot of time studying crop dusters: their control surfaces, landing gear, engines, spray equipment, etc. to make sure we got the details correct."

The finished version of Dusty Crophopper was influenced by several different ag aircraft. Carlson says they focused primarily on the Air Tractor 302 and 402, Cessna Ag Wagon, Rockwell Thrush and Dromader aircraft.

Spreading *Planes* Wings

Another critical component vital to Lasseter's "Truth in Materials" mantra was making sure the flying sequences depicted were as realistic and



Photos courtesy of Disney

MAGIC KINGMEN *Director Klay Hall (top) and screenwriter Jeffrey Howard (middle) were two of the prime players who conceived of a crop duster as the protagonist for Disney's* Planes. *Art Director Ryan Carlson (bottom) was tasked with bringing Dusty Crophopper and the rest of the* Planes *characters to life.*

technically accurate as possible. Flight specialist Jason McKinley joined the crew midway through the project to oversee that aspect of the film.

Before being brought on board, McKinley had studied mostly combat aircraft. Ag pilots may recognize his work on the series *Dogfights* on The History Channel. McKinley created, directed and produced the air combat reenactment show. He also created most of the air combat sequences in the 2012 film *Red Tails* about the Tuskegee Airmen. To get up to speed on agricultural flying, McKinley and his team studied YouTube videos and any footage Disney had.

"Sometimes we would watch footage and figure out the general average roll rate of the plane and even try and determine what the minimum turn radius would be at certain speeds," he said. "We would really try to get an accurate flight envelope so that when the audience is watching the aircraft it looks realistic and there's nothing out of bounds as far as what that type of plane can do."

McKinley isn't a pilot himself, but he was able to lean on Sean Bautista, a former F-16 National Guard pilot who traveled with the production crew for several days visiting with various pilots, including Thiel's operation on the day they miked up his AT-802 for sound recording. Bautista had previously spotted a flaw in the film that predated Thiel's recording session. The crew had already been recording sound for several months by that point, but getting Thiel's AT-802 on record was vital because originally the engineers had used sound from a piston engine for Dusty. "We were like, 'Yeah, he's not a piston engine, he's a turbine, so we need to get the right engine,'" McKinley said.

Thiel figures 15–20 representatives from Disney showed up on that June 2012 day, including McKinley, Bautista, producers and several sound technicians. After Thiel uncowled the aircraft, they taped microphones to the front and back of the engine. They put a microphone underneath the cockpit and one in the tail section. Crewmembers also used several handheld mics to follow alongside the aircraft. "It took them quite a while—a couple of hours—to get all the microphones in place and get them synched," Thiel said.

Eric Dumigan Photography, www.airic.ca

A live action version of Dusty Crophopper hit the air show circuit this summer flown by aerial applicator Rusty Lindeman of Rusty's Flying Service, D'Hanis, Texas. Lindeman transformed his Air Tractor 301 into a turbine-powered AT-400A to go along with the Dusty paint scheme.

Over the course of the next couple of hours Disney's team performed the recording equivalent of a complete workup on the 802. They recorded a startup. They recorded a shutdown. They recorded Thiel taxiing. They recorded him backing up. They lined eight microphones alongside the runway for his takeoff and landings. "Then they found out about beta—reverse. They loved that sound. I hope that comes through in the movie," Thiel said. "It makes a really neat sound."

The funniest moment of the day came when a young woman approached Thiel right before takeoff. "She was obviously from the city, and she says, 'And we want the sound of a flyover.' I said, 'Okay.' And she said, 'I'm going to stand in the middle of the runway with my microphone over my head, and I want you to fly over me as low as you feel comfortable.' I said, 'Are you kidding me? Do you really know what we do?' And she says, 'Well, just fly over me as low as you feel comfortable.' So I said, 'Okaaaay.'"

She staked her spot, the crew called for the flyover and Thiel dropped down as low as he could go. "We had to do it four times because the first two times she was screaming in the mic. The third and the fourth time she laid down. That was the best part of the day!"

*[**Editor's Note:** No sound techs were harmed in the recording of the movie, but the young technician walked away having learned a lesson: Don't ever explicitly or implicitly issue a "how low can you go?" challenge to an aerial applicator.]*

On a more practical note, McKinley left with a much better feel for how an ag plane handles and how to make Dusty Crophopper behave like a real ag plane. "What was funny was Doug was so calm and quiet, and then in the air the talent he showed flying for us, it was amazing how he could

Eric Dumigan Photography, www.airic.ca

Lindeman performs at the Waterloo Air Show in Ontario, Canada, in early June.

maneuver the aircraft and get it to turn on a dime," he said.

Will It Pass the Sound Test?

The challenge of matching sound to the movement of the aircraft on screen epitomizes the complex anatomy that lies beneath the surface of an action-filled animated film.

"What's interesting is you'd be surprised, everybody knows what a plane sounds like when it flies by," McKinley said. "Everyone sees planes so often and hears them that if we were off a few feet from where the plane should be in the real world to where he is in the animated space, you would be able to tell and the general audience would be able to tell, and that would take them out of the story."

"That's why just in that one particular area we had to be so exact," McKinley added. "[In Thiel's case] we wanted to try to cover every maneuver that we could think of so that we could match that up with the dynamics of the plane in the film."

"I was really impressed with the sound I heard on the film. It was extremely accurate," said NAAA President Ness, who owns and operates Ag-Air Inc. in Rudyard, Mont.

Transforming real-life aircraft maneuvers into a reasonable computer-generated facsimile presented another set of challenges. "It's astounding how difficult it is to get this to do it in a computer and have it not look like it's a toy or on wires," McKinley said. "Roll rate and turn radius turned out to be the most important part of the realism for us in the film, which is not something you would think about."

Kid Tested, Father Approved

For all its technical brilliance, *Planes* remains at heart a family film in the traditional sense of the word. It's short on gross-out gags and long on humor, determination and heart. The script was inspired by the big-tent philosophy shared by Lasseter, Howard and Hall.

"I think a family movie in the truest sense of the word means that everybody—the parents and the kids—can get something out of it," Howard said. "A lot of times you'll hear the word 'family movie' and it's really code for 'Well, it's for kids.' … John would advise us to try to make it as much as you can for the dads and for the adults."

Although the aerial applicators the filmmakers visited with contributed to the crisp maneuvers and nimble flying Dusty displays, in many respects the writers looked within to get to the heart of Dusty's journey. "We pull a lot of things from our own lives," Howard admits. "We just pulled from that universal feeling of thinking that you can be more than who you are, in Dusty's case more than what he was built for—that he can rise beyond his seeming limitations or the limitations that society has placed on him. … We have a line in the movie that he's flown thousands of miles, but he's never really been anywhere. But he has this great yearning to get out there and test himself and believes that he can be a racing plane and do this big race."

Elevated to the Big Screen

For all of the marketing muscle Disney is putting into the picture now, similar to Dusty's character, *Planes* emerged from the more humble beginnings of a planned direct-to-video release before the studio elevated it to a big screen theatrical release.

Planes' promotion was agricultural aviation's gain too. Even if the production values had been on par with what they are today, a straight-to-DVD release would have resulted in Dusty being exposed to a decidedly smaller and, likely, less-multi-generational audience.

"From the very beginning we assumed it was going to go direct-to-DVD, but we always had the possibility in the backs of our heads of, 'Hmmm, what if it could go theatrical?' With everything we do we make it to be the best that we can possibly make it and let the chips fall where they may," Howard said. "It became theatrical because it was good."

So good, in fact, Disney reportedly is already considering making *Planes 2*. ■